

WHAT IS CLAIMED IS:

1. A motor driving device comprised of a motor and a digital control means which at least has a current command value calculating means, a current control means and a PWM control means PWM-controlling a motor driving circuit for supplying a current to said motor as its components,

said motor driving device is characterized in that an n-th-order hold means (n is a natural number) is provided between said components of said digital control means whose sampling periods are different from each other.

2. A motor driving device according to Claim 1, wherein said n-th-order hold means is provided between said current command value calculating means and said current control means.

3. A motor driving device according to Claim 1 or 2, wherein said n-th-order hold means is provided between said current control means and said PWM control means.

4. A motor driving device according to any one of Claims 1 to 3, wherein said n-th-order hold means is any one of:

a hold means using a n-th-order equation;

a hold means that allows an error to fit a n-th-order equation by least squares method so as to be minimum;

a first-order hold means in which $G(s) =$

$T^{-1} \cdot (1+Ts) [(1-\exp(-Ts))/(Ts)]^2$ (where, T is a sampling period) is used as a transfer function; and

a first-order hold means in which $u(t) = u(k) + [(t-kTs)/Ts] (u(k+1)-u(k))$ (where, $kTs < t < (k+1)Ts$ holds, and Ts is a sampling period) is used as a transfer function.

5. A motor driving device according to any one of Claims 1 to 4, wherein a microcomputer is used as said digital control means.

6. A motor driving device according to any one of Claims 1 to 5, wherein an inductance value of a winding wire of said motor is 100 μ H or less.

7. A motor driving device according to any one of Claims 1 to 6, wherein said motor is a brushless DC motor.

8. A motor driving device according to any one of Claims 1 to 7, wherein an energizing current of said motor is a rectangular wave current.

9. An electric power steering apparatus comprised of said motor driving device according to any one of Claims 1 to 8.